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PATENTS ACT 1952

613046

APPLICATION FOR A STANDARD PATENT

We, OLYMPIC AMUSEMENTS PTY. LTD.  
of 11 MURDOCK STREET  
SOUTH CLAYTON 3169  
MELBOURNE  
AUSTRALIA

hereby apply for the grant of a standard patent for an  
invention entitled:

VIDEO AMUSEMENT APPARATUS

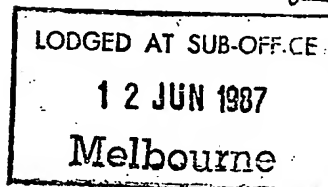
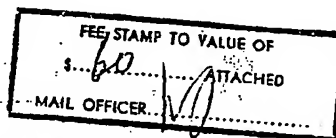
which is described in the accompanying provisional  
specification

Our address for service is care of CLEMENT HACK & CO., Patent  
Attorneys, 601 St. Kilda Road, Melbourne 3004, Victoria,  
Australia.

DATED this 12th day of June 1987

OLYMPIC AMUSEMENTS PTY. LTD.

TO: The Commissioner of Patents.



CLEMENT HACK & CO.

[Signature]



AUSTRALIA

PATENTS ACT 1952

B

APPLICATION  
BY ASSIGNEE  
OF INVENTOR

DECLARATION IN SUPPORT OF AN APPLICATION  
FOR A PATENT

NAME OF  
APPLICANT

In support of an application made by:  
OLYMPIC AMUSEMENTS PTY LTD

TITLE

for a patent for an invention entitled:  
VIDEO AMUSEMENT APPARATUS

FULL NAME AND  
ADDRESS OF  
SIGNATORY

I, NICK MITRIS  
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do solemnly and sincerely declare as follows:

FULL NAME AND  
ADDRESS OF  
INVENTOR(S)

1. I am authorised by the above mentioned applicant for the patent to make  
this declaration on its behalf.

2. The name and address of each actual inventor of the invention  
is as follows:

Enno Detlef DAVIDS,  
47 Wilson Street, Cheltenham, 3192  
AUSTRALIA

SEE NOTES OVER

3. The facts upon which the applicant is entitled to make this application  
are as follows:  
The applicant is the assignee of the actual  
inventor

DELETE PARAGRAPHS  
4 AND 5 FOR  
NON-CONVENTION  
APPLICATION

~~4. The basic application(s) as defined by Section 111 of the Act was (were)  
made as follows:~~

~~Country on  
in the name(s)  
and in on  
in the name(s)~~

5. The basic application(s) referred to in the preceding paragraph was  
(were) the first application(s) made in a Convention country in respect of  
the invention the subject of this application.

PLACE AND DATE OF  
SIGNING

Declared at Springvale, Victoria

this Sixth day of May 19 91

Signed Nick Mitris

Position DIRECTOR

**GRIFFITH HACK & CO**

PATENT AND TRADE MARK ATTORNEYS

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(56) Prior Art Documents  
AU 80238/82 A63F 9/22 G07F 17/32  
AU 578357 56433/86 G07F 17/34  
AU 576573 42038/85 G07F 17/34

(57) Claim

1. A video amusement apparatus comprising:  
a screen for displaying a first video game  
providing one or more plays in a particular game and that  
involves a player selecting a symbol, from a plurality of  
symbols that are randomly displayed in each play, as a  
winning symbol;

means for storing a table of preselected bias  
numbers having values between a predetermined upper and  
lower value;

means for selecting an appropriate sequence of  
bias numbers for the current game and a bias number from  
that said sequence corresponding to the current play,  
wherein the bias number corresponding to each successive  
play in a game is preselected so that with each successive  
play in that game the probability of a player winning  
changes as the game progresses to enable control of game  
return;

means for calculating whether the player wins or  
loses the current play in accordance with said  
corresponding bias number; and

means for generating a random sequence of said  
plurality of symbols for display on said screen including  
said selected symbol whenever a winning play occurs.

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# COMPLETE SPECIFICATION

(ORIGINAL)

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## TO BE COMPLETED BY APPLICANT

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Complete Specification for the invention entitled: VIDEO AMUSEMENT APPARATUS

The following statement is a full description of this invention, including the best method of performing it known to me:—

VIDEO AMUSEMENT APPARATUS

5           The present invention relates to video amusement  
••••• apparatus and relates particularly, but not exclusively, to a  
coin operated video gaming machine which provides enhanced  
amusement to a player as well as improved control over the  
return of the machine.

10           Video gaming machines are becoming increasingly  
popular as they replace the more traditional mechanical gaming  
machines which typically comprise three or more reels mounted  
on a common shaft and adapted to rotate independently of one  
another. Each of the reels bears along its peripheral surface  
15 a preselected sequence of a variety of symbols, such as  
various kinds of fruit and/or numbers, the arrangement of the

symbols on each reel usually being different. When a game is initiated by a player, the reels are set in motion and then randomly caused to stop in different positions. The player wins a certain number of credits depending on whether one of a 5 number of predetermined combinations of symbols appears in a window through which a single row of the symbols on the reels can be viewed.

In video gaming machines, the mechanical arrangement of the reels on a common shaft is replaced by a video display 10 screen, such as a cathode ray tube (CRT). The display of symbols on the CRT screen of such video gaming machines is controlled by electronic circuits, whereby the display of symbols on revolving reels is simulated electronically.

Most of the video gaming machines currently 15 available tend to be limited in the advantages that they offer compared to conventional mechanical gaming machines, due to the fact that they have generally been made to simulate the operation of conventional reel-type machines as closely as possible. For example, in most video gaming machines the 20 return of the machine, that is the amount of money the machine returns to the player and/or the proprietor of the machine relative to the amount of money the machine takes from the player, is still controlled by preselecting the number and 25 arrangement of the symbols in each symbol group to be displayed sequentially in the display zones of the screen array. The number and arrangement of the sequence of symbols in each symbol group will determine the probability of a 30 particular symbol being displayed when the sequential display of symbols in that group is randomly stopped. Furthermore, most video gaming machines currently available do not utilize the capabilities of video processing apparatus for enhanced player amusement over that provided by mechanical gaming machines.

Therefore the present invention was developed with a 35 view to providing an improved video amusement apparatus with video games that enhance player amusement, and in which the control of the proprietor over game return is more flexible.

According to one aspect of the present invention there is provided a video amusement apparatus comprising:

a screen for displaying a first video game providing one or more plays in a particular game and that  
5 involves a player selecting a symbol, from a plurality of symbols that are randomly displayed in each play, as a winning symbol;

means for storing a table of preselected bias numbers having values between a predetermined upper and  
10 lower value;

means for selecting an appropriate sequence of bias numbers for the current game and a bias number from that said sequence corresponding to the current play, wherein the bias number corresponding to each successive  
15 play in a game is preselected so that with each successive play in that game the probability of a player winning changes as the game progresses to enable control of game return;

means for calculating whether the player wins or  
20 loses the current play in accordance with said corresponding bias number; and

means for generating a random sequence of said plurality of symbols for display on said screen including said selected symbol whenever a winning play occurs.

25 Preferably said means for calculating whether the player wins or loses the current play comprises:

means for generating a random number between a predetermined upper and lower value in response to a player initiating the current play; and

30 means for comparing the value of said random number with the value of said corresponding bias number in order to determine whether the current play will be a winning or a losing play.

Preferably said apparatus further comprises  
35 means to enable the player to select a symbol from said plurality of symbols and means to enable the player to nominate the number of plays in a game.





Preferably said apparatus further comprises means to enable the player to initiate each individual play in a particular game.

In a preferred embodiment of the video amusement apparatus said plurality of symbols consists of the front and reverse sides of a coin, and said random display generating means preferably includes a video processing means for generating a video display of an imaginary reel having said plurality of symbols randomly distributed along its peripheral surface.

According to another aspect of the present invention there is provided a method of controlling a video amusement apparatus having a screen for displaying a video game that involves a player nominating the number of plays in a particular game, and selecting a symbol, from a plurality of symbols that are randomly displayed in each play, as a winning symbol, said method comprising the steps of:

(a) selecting, from a stored table of preselected bias numbers between a predetermined upper and lower value, an appropriate sequence of bias numbers for the current game and the bias number corresponding to the current play, wherein the bias number corresponding to each successive play in a game can be preselected so that with each successive play in that game the probability of a player winning changes as the game progresses to enable control of game return;

(b) calculating whether the player wins or loses the current play in accordance with said corresponding bias number;

(c) generating a random sequence of said plurality of symbols for display on said screen; and if the current play is a winning play:

generating said selected symbol for display on the screen after said random sequence;

determining whether said winning play is the final play in the current game; and if it isn't the final play repeating steps (a) to (c).

Preferably said step of calculating whether a player wins or loses comprises the steps of:

- generating a random number between said predetermined upper and lower value in response to a
- 5 player initiating the current play; and
- comparing the value of said random number with the value of said corresponding bias number in order to determine whether the current play will be a winning or a losing play.

- 10 Preferably said method of controlling a video amusement apparatus comprises the further steps of:

- requesting the player to nominate the value of a bet on the outcome of a play, before said step of calculating whether the player wins or loses; and,
- 15 multiplying said nominated value of the bet by  $2^{n-1}$ , where n equals the number of the current play in the game, in order to determine the value of credit to be won by the player in that play.

- In a preferred embodiment of the method of
- 20 controlling a video amusement apparatus, the method further comprises the step of:

- requesting the player to nominate whether the credit won remain in the players stored credit balance, or whether said credit won be paid to the player in the form
- 25 of a cash payout.



5

Figure 2 illustrates in block diagram form a preferred embodiment of the video amusement apparatus;

10

Figure 5 illustrates an example of a video game that can be played on a second preferred embodiment of the video amusement apparatus; and

A 3x3 grid of dots. The dots are arranged in a cross shape, with a horizontal row of three dots and a vertical column of three dots. The center dot is shared between the two rows.

A 4x4 grid of dots forming a stylized letter 'A'. The top row has 4 dots, the second row has 3 dots, the third row has 2 dots, and the bottom row has 1 dot.

Figure 6 is a flow diagram illustrating a preferred sequence of steps implemented by the apparatus of Figure 2 in order to play the game illustrated in Figure 5.

Referring to Figure 1 there is illustrated a preferred form of the cabinet housing a preferred embodiment of the video amusement apparatus. The following description will be given with reference to a video poker machine, however it is to be understood that the video amusement apparatus according to the invention may also be embodied in a video game of the kind commonly found in amusement parlors, which do not return money to the player as a result of winning the game. The video poker machine cabinet illustrated in Figure 1 includes a screen 2, normally comprising a cathode ray tube (CRT) display, a coin slot 4 in which the player inserts coins in order to activate a game, a series of buttons 6 which replace the lever on a conventional one arm bandit type poker machine and allow the player to make various inputs to the machine, and a coin tray 8 through which the machine pays out any winnings accumulated by the player as a result of playing the video game.

In Figure 2 a preferred embodiment of the video amusement apparatus is shown in block diagram form. The apparatus comprises an input/output (I/O) processor 10 which comprises a microprocessor system that typically includes a microprocessor unit, random access memory (RAM) devices, read only memory (ROM) devices and various peripheral interface devices as well as digital to analog (D/A) and analog to digital (A/D) converters, to enable the I/O processor 10 to communicate with the outside world. The function of the I/O processor 10 is generally to control the various inputs and outputs to the video poker machine, including the illumination of various parts of the machine and production of sound affects to enhance game enjoyment, shown generally at 12 in Figure 2. I/O processor 10 also controls the player inputs 14, generally comprising a number of buttons arranged on a front panel of the poker machine as shown at 6 in Figure 1, in order to configure the buttons for the particular video game

being played and to convert the player inputs into a digital format for transmission to the video processor 18. I/O processor 10 also controls the coin apparatus 16 which comprises a coin mechanism (not shown) located beneath the 5 coin slot 4 in Figure 1 for counting money inserted in the slot 4 and comparing each coin with a genuine coin held in the mechanism in order to reject fake coins. The coin apparatus 16 further comprises a coin hopper (not shown) for delivering the correct number of coins when the machine provides a payout 10 of winnings to the player, and a coin diverter mechanism (not shown) which diverts coins to the coin hopper when the supply of coins therein is low and otherwise diverts coins to a coin till held in the machine. I/O processor 10 also provides a digital signal to the video processor 18 which indicates the 15 number of coins inserted in the coin mechanism of the coin apparatus 16.

Video processor 18 comprises a microprocessor system similar to that of the I/O processor 10 and has the principal function of controlling the video game appearing on the CRT 20 display 20. The video processor 18 is responsive to signals from the I/O processor 10 to operate the video game under the control of a programme stored in game memory 21. The game control programme stored in game memory 21 controls video processor 18 to select the appropriate static and moving 25 symbols from symbol memory 22 for display on the CRT display 20. Symbol memory 22 includes a bi-pass ROM where static symbols are stored, and another ROM where moving symbols are stored, such as the sides of the coin used in the coin toss game to be described shortly. Video processor 18 also 30 includes D/A conversion circuits to convert the symbols stored in digital format in symbol memory 22 into an analog RGB signal for controlling the electron gun of the CRT display 20 to produce high resolution colour graphics. Video processor 18 also includes a separate ROM (not shown) for storing 35 digitized images, such as photographs used by the proprietor of the machine to publicize the games. A random access memory

(RAM) is provided in video processor 18, as a work space, used by the microprocessor system to determine the outcome of a game and other game parameters.

One example of a video game that can be played on the apparatus of Figure 2 will now be described with reference to Figures 5 and 6. Figure 5 illustrates a preferred form of images appearing on the screen of the CRT display 20 during a first video game, that involves a player nominating the number of tosses of a coin in a game and selecting either the front or reverse side of the coin (Heads or Tails), which are randomly displayed in each play, as the winning side of the coin. In this embodiment the Head and Tail symbols are stored in the symbol memory 22 from which they are retrieved by the video processor means 18 to generate a random sequence of Head or Tail symbols for successive display on the screen in a format which simulates a revolving reel having the Heads and Tails distributed along its peripheral surface in a random sequence. A single play, that is a single toss of the coin, is completed by stopping the movement of symbols on the screen and displaying either a Head or a Tail symbol in order to indicate to the player the outcome of that play.

With this video game the I/O processor 10 configures the buttons on the front panel of the machine to provide at least three player inputs: a button that enables the player to nominate the number of plays in a game; a button that enables the player to set the value of a bet on the outcome of a play in that game; and, a button that enables the player to select either a Head or a Tail as the winning symbol in that play. Figure 6 illustrates the preferred sequence of steps implemented by the apparatus of Figure 2 in order to enable a player to play the video coin toss game.

The first step undertaken by the video processor 18 when the video coin toss game has been entered is to initialize the variables such as the value of the bet and the number of plays. Then it requests the player to nominate the value of a bet on the outcome of a game. When betting is complete the video processor 18 collects the number of plays

in the game as nominated by the player using a push button on the front of the machine, and enters the coin tossing routine. In the coin tossing routine the microprocessor system of video processor 18 determines whether the player wins or loses and 5 displays the result on the screen. The coin tossing routine proceeds as follows:

The microprocessor system of the video processor 18 selects the appropriate bias sequence for the total number of plays in the current game, and also selects the appropriate 10 bias number for the current play. Exemplary coin bias values for each play in ten different games are given in Table 1.

TABLE 1  
Table of Coin Bias Values

Number of plays per game		Coin bias in each play									
1	1	88,	0,	0,	0,	0,	0,	0,	0,	0,	0,
20	2	80,	55,	0,	0,	0,	0,	0,	0,	0,	0,
3	3	85,	70,	37,	0,	0,	0,	0,	0,	0,	0,
4	4	90,	80,	45,	34,	0,	0,	0,	0,	0,	0,
5	5	90,	80,	65,	42,	28,	0,	0,	0,	0,	0,
6	6	90,	80,	70,	60,	35,	26,	0,	0,	0,	0,
25	7	90,	80,	70,	60,	50,	35,	26,	0,	0,	0,
8	8	90,	85,	80,	70,	60,	49,	35,	20,	0,	0,
9	9	90,	85,	80,	70,	60,	55,	40,	29,	21,	0,
10	10	90,	85,	80,	70,	60,	55,	50,	45,	26,	15,

30 In Table 1 each row of values corresponds to a different game, the first row providing the coin bias value for a game having a single play, the second row providing the coin bias values for a game having two plays, and so on, until the tenth row in which the coin bias values for each play in a 35 game having ten plays are given. For illustrative purposes,

let us assume that the player has nominated three plays in the current game and that he is ready to select either a Head or a Tail as his choice of the winning symbol. The video processor 18 waits for the appropriate signal transmitted via the I/O processor 10 from the appropriate player input button to initiate the current play. When the player has nominated his choice of symbol the video processor calculates whether the player will win or lose the current play.

In this embodiment of the video coin toss game the processor 18 generates a random number between 0 and 100 and then compares the value of this number with the coin bias value corresponding to this play in Table 1. If the value of the random number is greater than the predetermined bias number for this play, that is 85 for the first play in a game of three, then the player loses that play, and if the value of the random number is less than or equal to 85 then the player wins that play and has the opportunity to initiate a second toss of the coin in that game by selecting Heads or Tails as the winning symbol. From the moment that the player has selected either Heads or Tails, the video processor 18 generates a random sequence of Heads or Tails for display on the screen in a manner which simulates a revolving reel having the coin symbols distributed in a random sequence along its peripheral surface, as described above.

After a predetermined interval of time, having already calculated whether the player will win or lose this play, the video processor displays the game result, that is the outcome of the coin toss, which will correspond to the symbol selected by the player if he won that play and will be a different symbol if he did not win that play. In this embodiment of the video game, the player must win every coin toss in order to complete that game. Let us assume the player has won the first play in the current game and is ready to select either Heads or Tails as the winning symbol in the second play. The player having selected his symbol, the video processor 18 again generates the random sequence of Heads or Tails for display on the screen and simultaneously calculates



whether the player will win or lose this play by generating a second random number between 0 and 100 and comparing this with the value of the bias number for the second play in a game of three as shown in Table 1. In Table 1 for a game of three  
5 plays the probability of a player winning on the second coin toss will be 0.7. If the player wins on the second coin toss he has the opportunity of making a selection for the third and final play in this game. The probability of the player winning the third play in a game of three is set by the bias  
10 number in Table 1 at 0.37.

In the preferred form of the video coin toss game, the value of the credit won by the player doubles with each successive play after the first play in each game. Therefore,  
15 if the player wins the first play in a game of 1 play he will get his money back; if he wins the first and second game in a game of 2 plays he will get double his money back; and if he  
20 wins the first, second and third game in a game of 3 plays he will get four times the value of credit he bet on the outcome of the game. In order to determine the return of the game to the player, one simply multiplies the probabilities for each successive play in that game by  $2^{n-1}$ , where n equals the  
25 number of plays in that game.

For example, in games for which three plays are nominated the return of the machine can be determined as  
30 follows:

$$0.85 \times 0.7 \times 0.37 \times 2^{3-1} = 0.88.$$

That is, on average, the machine will return 88% of  
35 the money that players put into it when playing the video coin toss games and nominating three tosses of the coin. When all the plays in the current game are complete, the player collects his winnings and the game ends. Preferably the video amusement apparatus according to the invention also includes means which enable the player to nominate whether he wishes his winnings to be added to the accumulated credit in his  
40 credit balance, or whether he wishes to receive his winnings in the form of a cash payout.

In the above described embodiment of the video amusement apparatus, and the method of controlling the same, provision is made for the player to bet on the outcome of the game. Clearly this is not essential to the video coin-toss game. The game can be arranged to provide a fixed amount of credit for each winning play, the credit being accumulated in the player's favour, to be used at his discretion, to play further games of the video coin-toss game or other video games available on that machine. The sequence of steps in the flow chart of Figure 6 would then be modified so that following the step of initialising variables the apparatus proceeds directly to requesting the player to nominate the number of plays in a game. The game can also be modified to exclude the possibility of only nominating one play as this is probably not an attractive option since at best it only returns the credit put in. The credit that can be won still doubles with each successive win after the first win in a game as before.

In a video amusement apparatus developed by the present applicants the above video coin toss game is included as an optional bonus game which the player can elect to play after winning a prior video game. An illustrative embodiment of this second video game is shown in Figures 3 and 4. This game includes a plurality of predetermined particular combinations of symbols selected from a plurality of possible symbol combinations that can be displayed on the screen of the CRT display 20, as a winning combination prior to commencement of a game. This video game can be played using substantially the same apparatus as is used with the video coin tossing game except that this game does not require any player inputs other than the insertion of coins in the coin slot of the machine.

Upon commencement of a game the video processor 18 generates an array of 9 symbol windows for display on the screen of the CRT display 20, as may be seen most clearly in Figure 4, in which the array of symbol windows is arranged in three columns and three rows. Like the prior art video gaming machines referred to above, this video game simulates the operation of a conventional mechanical gaming machine. In

each symbol window a predetermined sequence of a plurality of symbols can be generated for display in that window independently of the other windows in order to simulate the successive movement of symbols arranged on the peripheral surface of a plurality of reels in a mechanical poker machine.

The player nominates a particular combination of symbols as a winning combination by nominating the number of pay lines in the array of symbol windows appearing on the screen. In Figures 3 and 4 the array is shown as having eight pay lines: three horizontal, three vertical and two crossing diagonally. However, in the video game according to the present invention the possible symbol combinations that can be nominated as winning combinations are not limited to combinations of symbols appearing in windows along the vertical, horizontal and diagonal lines in the array but also include combinations of symbols appearing in a non-linear pattern of windows in the array. For example, the player may also nominate the combination in which the same symbol appears in the middle window of the top and bottom row as well as the left and right column of the array as a winning combination. In this manner, the number of possible winning combinations can be greatly extended thus enhancing player interest and enjoyment of the video game.

In the above described embodiments of the video amusement apparatus microprocessor systems are employed to provide various control functions and to perform arithmetical and logical calculations. Clearly, dedicated digital logic circuits could be employed to perform the same functions in conjunction with the various memory devices and D/A and A/D converters. However, the use of microprocessor systems in the I/O processing means and the video processing means gives greater flexibility, and also enables continuous monitoring of game performance statistics which can be retrieved at any time by the proprietor of the machine.

Although, in the above described embodiment of the first video game the symbols employed are displayed as a random sequence of Head and Tail symbols distributed along the

peripheral surface of a simulated revolving reel, the same result can be achieved by a video display simulation of the movement of a tossed coin as it ascends and descends onto a flat surface. Only two simulations are required, one in which  
5 the coin lands showing a Tails result and the other in which the coin lands showing a Heads result. The appropriate simulation is displayed depending on whether the apparatus determines that the player wins or loses that particular play.

From the above description, it should be clear that  
10 the video amusement apparatus according to the present invention provides distinct advantages over prior art apparatus insofar as the video games that can be played thereon provide enhanced player amusement and also greater flexibility in the degree of control that the proprietor of  
15 the apparatus has over the return of the video games played thereon.

It will be obvious to persons skilled in the electronics and the poker machine arts that numerous alterations and modifications can be made to the apparatus and  
20 method, other than those specifically described, without departing from the basic concepts of the invention. All such modifications and alterations are to be considered within the scope of the invention, the nature of which is to be determined from the foregoing description and the appended  
25 claims.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A video amusement apparatus comprising:

a screen for displaying a first video game providing one or more plays in a particular game and that involves a player selecting a symbol, from a plurality of symbols that are randomly displayed in each play, as a winning symbol;

means for storing a table of preselected bias numbers having values between a predetermined upper and lower value;

means for selecting an appropriate sequence of bias numbers for the current game and a bias number from that said sequence corresponding to the current play, wherein the bias number corresponding to each successive play in a game is preselected so that with each successive play in that game the probability of a player winning changes as the game progresses to enable control of game return;

means for calculating whether the player wins or loses the current play in accordance with said corresponding bias number; and

means for generating a random sequence of said plurality of symbols for display on said screen including said selected symbol whenever a winning play occurs.

2. A video amusement apparatus as claimed in Claim 1, wherein said means for calculating whether the player wins or loses the current play comprises:

means for generating a random number between a predetermined upper and lower value in response to a player initiating the current play; and,

means for comparing the value of said random number with the value of said corresponding bias number in order to determine whether the current play will be a winning or a losing play.

3. A video amusement apparatus as claimed in claim 1 or Claim 2, further comprising means to enable the player to select a symbol from said plurality of symbols and means to enable the player to nominate the number of plays in a game.



4. A video amusement apparatus as claimed in Claim 3, further comprising means to enable the player to initiate each individual play in a particular game.

5. A video amusement apparatus as claimed in anyone of the preceding claims, wherein said random sequence display generating means includes a video processing means for generating a video display of an imaginary reel having said plurality of symbols randomly distributed along the peripheral surface.

6. A video amusement apparatus as claimed in Claim 5, wherein said plurality of symbols consists of the front and reverse sides of a coin.

7. A video amusement apparatus as claimed in any one of the preceding claims, further comprising means to enable the player to nominate whether credit won remain in a stored credit balance, or whether the credit won be paid to the player in the form of a cash payout.

8. A method of controlling a video amusement apparatus having a screen for displaying a video game providing one or more plays in a particular game and that involves a player selecting a symbol from a plurality of symbols that are randomly displayed in each play, as a winning symbol, said method comprising the steps of:

(a) selecting, from a stored table of preselected bias numbers between a predetermined upper and lower value, an appropriate sequence of bias numbers for the current game and the bias number corresponding to the current play, wherein the bias number corresponding to each successive play in a game can be preselected so that with each successive play in that game the probability of a player winning changes as the game progresses to enable control of game return;

(b) calculating whether the player wins or loses the current play in accordance with said corresponding bias number;

(c) generating a random sequence of said plurality of symbols for display on said screen; and if the current play is a winning play:

generating said selected symbol for display on the screen after said random sequence;

determining whether said winning play is the final play in the current game; and if it isn't the final play repeating steps (a) to (c)..

9. A method of controlling a video amusement apparatus as claimed in Claim 8, wherein said step of calculating whether a player wins or loses comprises the steps of:

generating a random number between said predetermined upper and lower values in response to a player initiating the current play; and,

comparing the value of said random number with the value of said corresponding bias number in order to determine whether the current play will be a winning or a losing play.

10. A method of controlling a video amusement apparatus as claimed in Claim 8 or Claim 9, further comprising the steps of:

requesting the player to nominate the value of a bet on the outcome of a play, before said step of calculating whether the player wins or loses; and,

multiplying said nominated value of the bet by  $2^{n-1}$ , where n equals the number of the current play in the game, in order to determine the value of credit to be won by the player in that play.

11. A method of controlling a video amusement apparatus as claimed in Claim 10, further comprising the steps of:

requesting the player to nominate whether the credit won remain in the player's stored credit balance, or whether said credit won be paid to the player in the form of a cash payout.

12. A video amusement apparatus as claimed in claim 1, wherein:

the screen for displays a second video game that



includes a plurality of predetermined particular combinations of symbols, selected from a plurality of possible symbol combinations that can be displayed on the screen, as winning combinations prior to commencement of a game; the apparatus further comprising:

means for generating an array of symbol windows for display on said screen, wherein for each symbol window a predetermined sequence of a plurality of symbols can be generated for display in that window independently of other windows upon commencement of the game;

means for terminating said sequential display of generated symbols in each symbol window independently of other windows of the array, whereby upon termination of said sequential display in each window, a randomly selected one of said plurality of symbols is displayed in each window independently of the other windows to give the outcome of the game; and

means for comparing each of said randomly selected symbols displayed in the array with said plurality of predetermined combinations of symbols in order to determine whether the outcome of the game included a winning combination;

wherein said plurality of predetermined symbol combinations is not limited to combinations of symbols appearing in windows along vertical, horizontal and diagonal lines in the array, but includes combinations of symbols appearing in non-linear patterns of windows in the array.

13. A video amusement apparatus substantially as herein described with reference to and as illustrated in the accompanying drawings.

14. A method of controlling a video amusement apparatus substantially as herein described with reference to and as illustrated in the accompanying drawings.

DATED THIS 24TH DAY OF APRIL, 1991

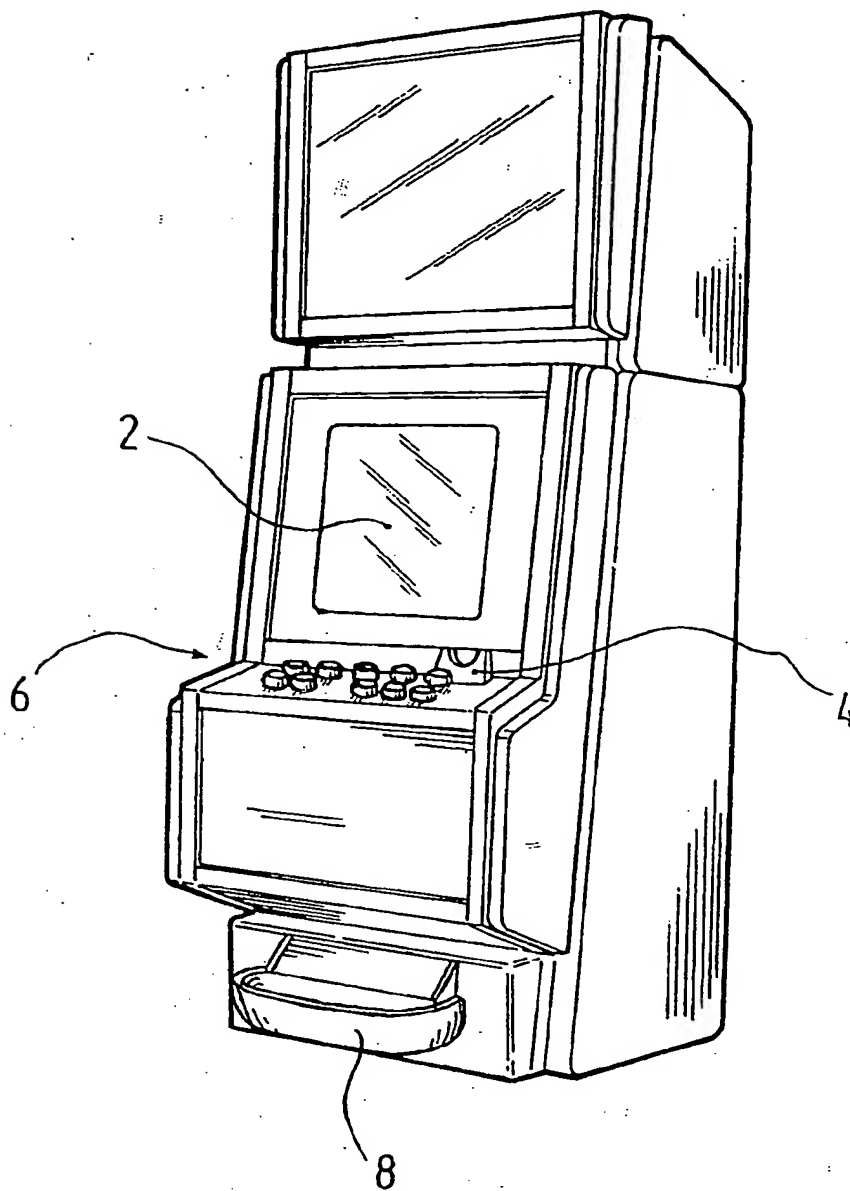
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III. 1.

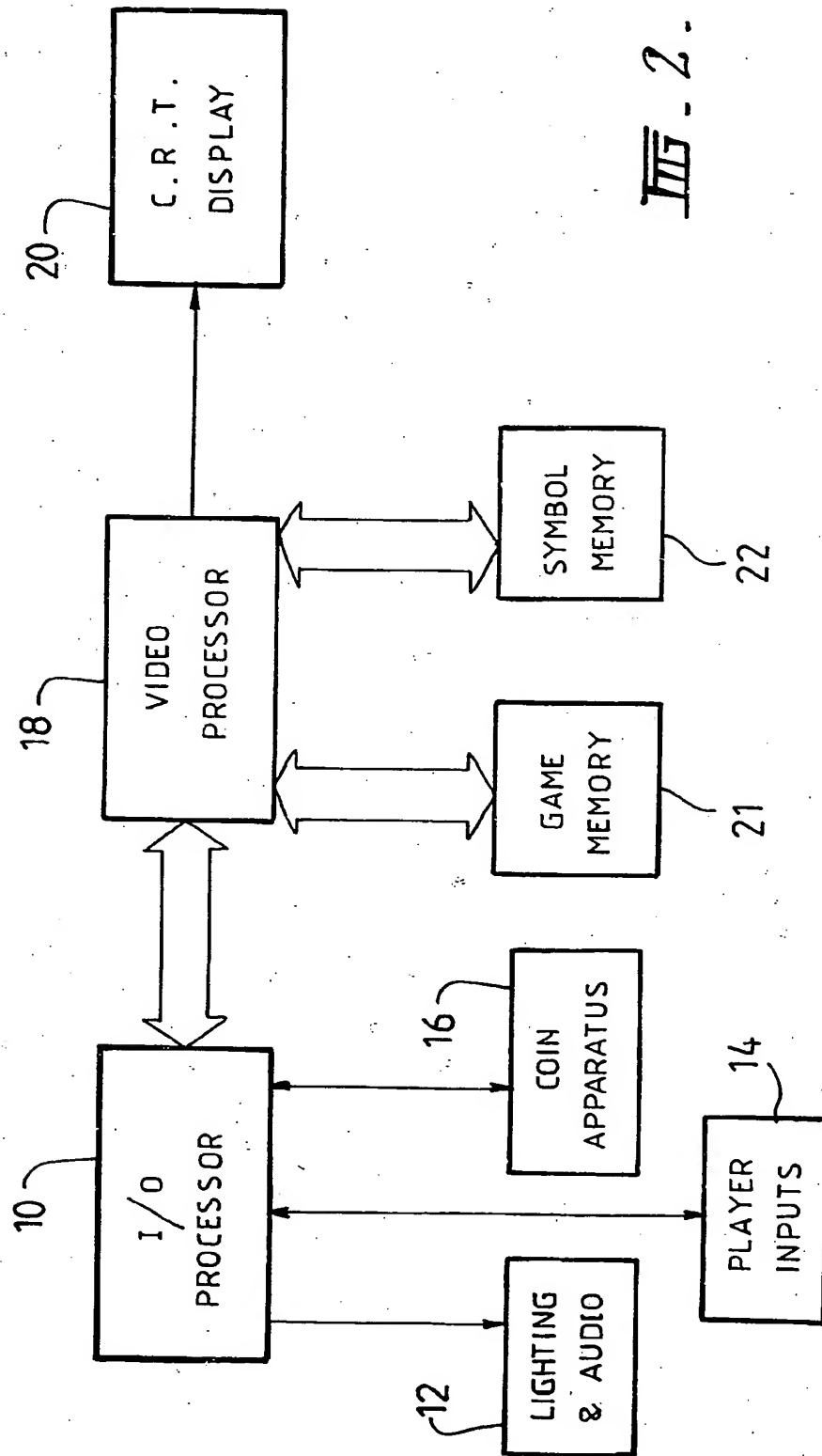


FIG. 2.

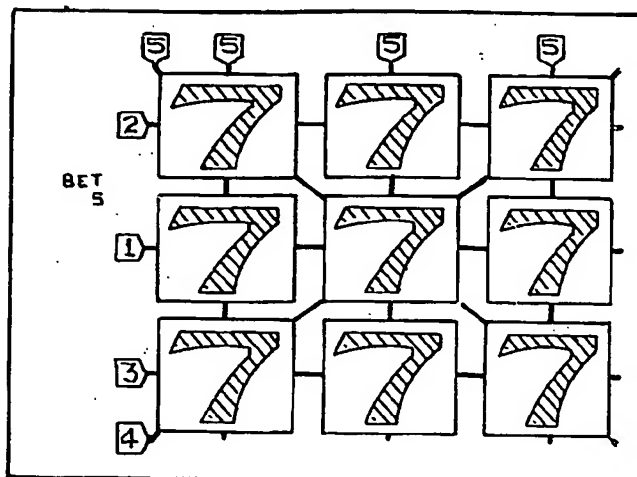


FIG. 3.

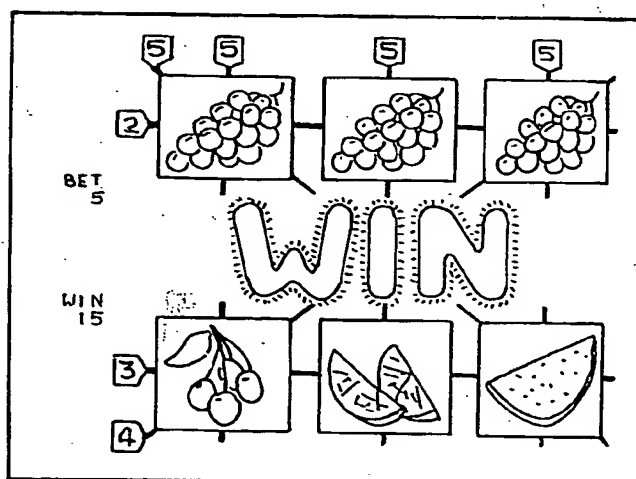


FIG. 4.

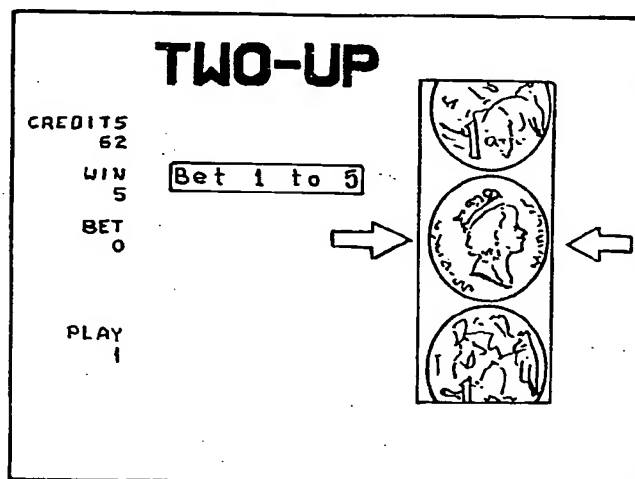


FIG. 5.

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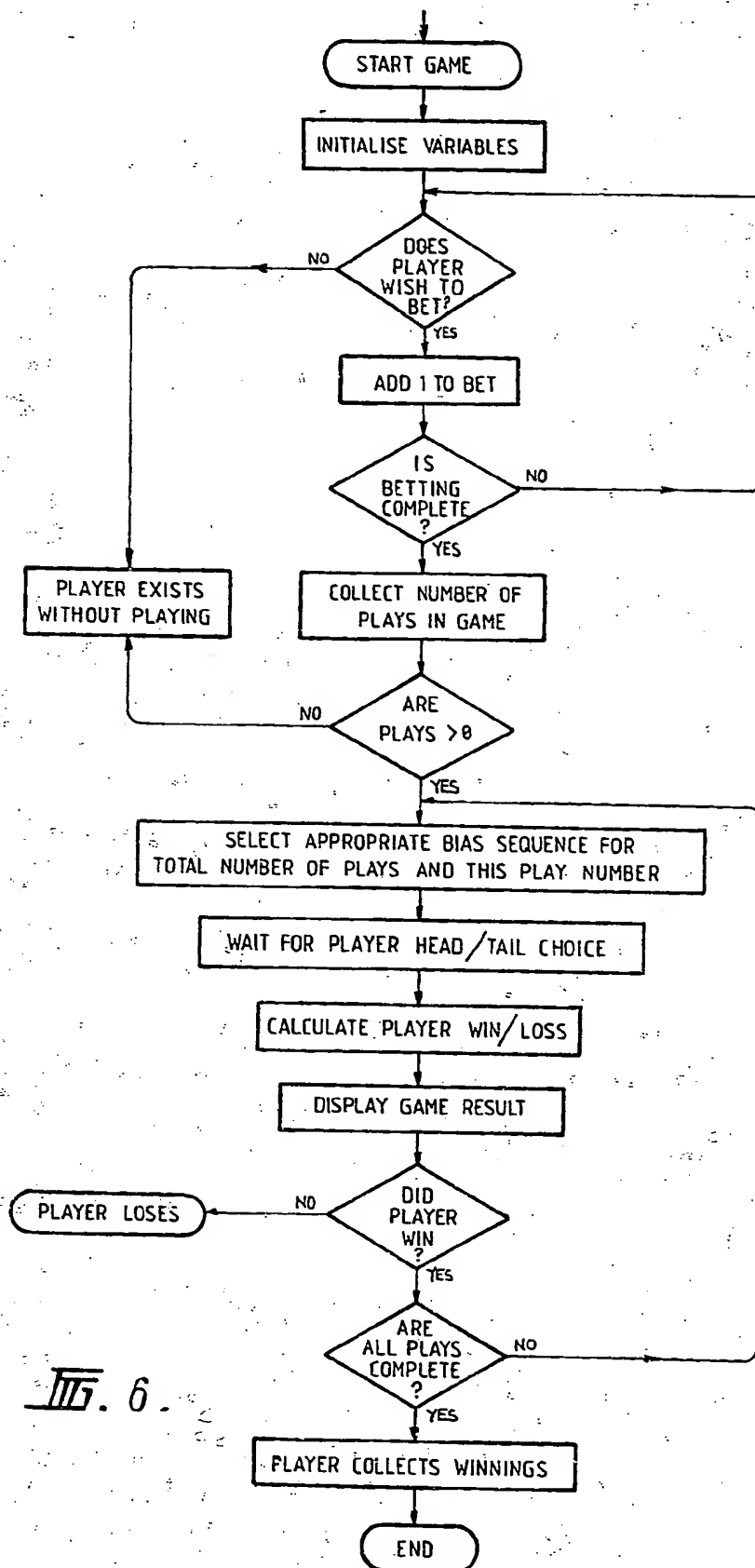


Fig. 6

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